Commission and exercised a dominating influence. Her "political economy" was not exactly "early," though whether it was any the better for that is another matter.

A. M. CARR-SAUNDERS.

Hogben, Lancelot, M.A., D.Sc. *Nature and Nurture—being the William Withering Memorial Lectures on "The Methods of Clinical Genetics," delivered in the Faculty of Medicine of the University of Birmingham for the Year 1933.* London, 1933. Williams and Norgate Ltd. Pp. 144. Price 6s. 6d.

THE subsidiary title is the better description of this book, for most of it is a handbook of the methods of human genetics. It is one of the merits of Professor Hogben's writings that he makes complex mathematics so simple to understand that the reader with a minimum of statistical knowledge is able to follow the argument, to appreciate the proper treatment for different types of data, and to understand how the computations are to be carried out. This book is no exception. The methods useful for the analysis of human data are clearly explained, while a valuable series of appendices give formulæ and amplifications that either deal with new and valuable techniques, or else present information that is taken for granted in most standard works, but of which the working biologist is too often ignorant. To mention only two appendices there is a full explanation of the treatment of linkage, which is especially valuable, and a simple account of the procedure for dealing with algebraic correlation tables. The student of human genetics will give the book a perpetual place on his desk, but its usefulness does not end here, for the worker on plant and animal material will find in it suggestions for the planning of experiments and the interpretation of results.

The book is one that will be appreciated by the general reader also. Professor Hogben, in his usual challenging and amusing way, develops a general argument that the eugenist cannot afford to ignore.

It would probably be a source of mild grief to Professor Hogben if a book of his were to receive a notice in these pages couched entirely in terms of unstinted praise. The first point, however, is purely one of methodology. Leading naturally from the principle of random mating the treatment of familial incidence is given solely in terms of those q^s methods that Professor Hogben has done so much to develop and popularize in this country. Nowhere is it hinted that alternative methods might be used and that q^s methods are not the most suitable for all bodies of data. The point is one of great practical importance and merits close analysis. If the chance that families containing two, three, or more affected children are included in the record is no greater than that families containing only one should appear, q^s methods are entirely applicable. But quite apart from preventable bias this ideal is not attained unless a complete ascertainment is made, and then only provided that the mortality rate of affected persons does not differ from that of the rest of the population. Alternatively a complete ascertainment within a narrow age-group would suffice, but only if the ascertainment were continued for, say, twenty years or more. If on the other hand the chance of a family containing two, three . . . affected children being included in the record is two, three . . . times greater than that of a family containing only one, the simple calculation of the proportion amongst the sibs of the original patients gives the correct measure. It is probable that most existing bodies of data do not conform to either set of criteria, but it is likely that in most instances the simple sib method will give a more accurate result than the complex q^s method. For example Sjögren's data on amauratic idiocy are mentioned. Using the q^s method, Professor Hogben in a previous paper showed that the discrepancy relative to the expected ratio of one-quarter was 2·4 times its standard error. He suggested bias in the record as the reason for this. Professor Haldane* suggested that the discrepancy was due to voluntary limitation

* Haldane: *Journal of Genetics*, 1932.

of families following the birth of an idiot. If, however, the proportion amongst the brothers and sisters is calculated, the discrepancy is only 0·8 times its standard error. The ascertainment was probably very complete, but the life of affected persons from diagnosis to death is relatively short so that it would appear that the sib method gives the better result and that q^s methods are not so suitable. In the case of albinism Professor Hogben found a discrepancy 4·7 times its standard error, while the sib method yields a discrepancy of only 1·3 times its standard error. In the case of Usher's families of retinitis pigmentosa the use of the q^s method masks a real discrepancy. The q^s method yields a discrepancy 2·0 times its standard error and this is held to be a satisfactory agreement (page 78). The sib method shows a discrepancy 4·8 times its standard error and further analysis shows that this is due entirely to a large excess of families containing one affected child only, that is, to a mixture of recessive and truly sporadic cases. It would be possible to give a number of further examples that indicate the superiority of the sib method as regards existing data. Actually however, unless the data are collected in such a way as rigidly to satisfy a given set of criteria our confidence that we are dealing with, for example, simple recessive inheritance, is not increased by a close fit as against an approximate agreement. That confidence is based primarily on more qualitative considerations such as consanguinity of parents, a subject treated most adequately elsewhere in this volume. It is more than arguable then that the sib method is probably the best for available data, but there is another practical point of even greater importance. It is to be hoped that genetic studies will be increasingly carried out, and doubtless relatively common conditions will also be investigated. This book would lead the research worker to try to satisfy the almost impossible demands of q^s methods, whereas the requirements of the sib method could be met very much more easily, for example a series of patients confined to a narrow age-group, and recorded over a relatively short interval.

The secondary theme of this book is an analysis of the methods available for discussing the relative contributions of heredity and environment together with sharp criticism of some of the interpretations that have sometimes been placed upon the results attained by their use. Work of fundamental importance was carried out a number of years ago by Professor Fisher, who showed that in quantitative inheritance it was possible to evaluate the part played by dominance and segregation, and so from a consideration of parental and fraternal correlations draw up a balance-sheet for the effects of nature and nurture. This work is not questioned, but the necessary assumption, it is argued, is one that may seldom be realized in practice. The assumption is this—that each genotype has the chance of experiencing with its appropriate frequency each of the available kinds of environment. Several examples are given of biological experiments in which the expression of the genotype is profoundly modified by environmental factors, and it is further argued that any analysis of this kind cannot be used to set limits to the change that might be effected if environmental agencies are radically altered. There is much that is new and valuable in Professor Hogben's treatment, and undoubtedly many eugenists will realize how carefully arguments of this type must be used and the possible pitfalls that await them if they do use them. Nevertheless, if one may express a personal opinion, the eugenist need not be so abashed nor the stern environmentalist so elated as a rapid reading of the final chapter of this book might suggest. Professor Hogben is fully entitled to use examples that give the utmost possible weight to his objections, but most of those examples considered in relation to ordinary problems are unusual, one could almost say fantastic, phenomena. Further, while it might often be true that the fraction of the total variance to be ascribed to environmental agencies would differ in different environmental situations, it would be very seldom indeed that the relative order of different genotypes would be affected. To

give an extreme example, one would still expect genetically tall individuals to be taller than genetically short individuals, even in a population in which rickets was universal.

References to amentia are purely incidental, but once again we see a familiar statement that seems to be becoming increasingly popular. " The fact that simple primary amentia may be regarded as an arbitrary segment cut off the tail of a normal distribution of intelligence. . . ." So far from this being a fact nearly all studies show that the tail of the curve of intelligence is very far from conforming to the normal distribution. Professor Pearson in his pioneer work on the subject stated that he considered it probable that the extreme end of the curve showed a real discrepancy. Of course one is not denying the continuity of the curve of intelligence, perhaps it is continuous because mentality has to be measured in terms of intelligence tests, but so many arguments appear to be based in these days on the supposed normality of the curve down to its uttermost end that one would like to see the supporting evidence.

Professor Hogben is so challenging, and refreshingly so, that one has naturally been tempted to meet argument with argument. Everyone will agree, however, that he has written a most useful book, for which he will earn the sincere gratitude of research workers, but it is also possible to say that it is a book that will be read with pleasure by a much wider public, and that even its most provocative passages will perform a real service in forcing those who are inclined to disagree to clarify their ideas. That a book so full of technical detail can be commended also to the instructed general reader is praise indeed.

J. A. Fraser Roberts.

SEX ETHICS

Guyon, René. *Sex Life and Sex Ethics.* (Translated from the French by J. C. and Ingeborg Flugel.) London, 1933. John Lane. Pp. xxii+386. Price 15s.

To old-fashioned persons, the prevailing intense preoccupation with sex—amounting almost to obsession—is somewhat disconcerting and bewildering. One asks oneself what it is all about. We are aware of certain " taboos and prohibitions," to use our author's favourite expression, which have survived from the past and are no longer in accord with current opinions and beliefs. But this very disagreement is producing the appropriate remedy. As public opinion changes, there occurs a corresponding change in practice and in the standard of conduct. We have only to consider the " bachelor girl " living alone in her flat and receiving male visitors without question or comment, or the men and women sprawling together in a state of almost complete nudity on sea beaches or sun-bathing platforms, to realize how great has been the relaxation in the standards of behaviour during the last few years. To some it seems to have gone too far; others clamour for further relaxation. Between them we may hope to reach the goal; which, I take it, is the capacity to consider the sexual functions in a reasonable spirit, unaffected by artificial taboos; to see them in their true proportions as part of the general scheme of human relations.

But this is what M. Guyon is apparently unable to do. To him, sex is the dominating interest of life; and he believes that his own state of mind is the usual and normal one. " We can say," he observes, " that, not only nervous patients, but all human beings, are, if not obsessed . . . at least constantly and generally preoccupied with sexual matters " (p. 19). And it is to be observed that the word " sex " is not used by him in its physiological sense as connoting the reproductive functions, but in the limited sense of sexual acts, or " sexual expression," to use the term employed by Dr. Norman Haire in his introduction. Basing himself largely on Freud in the view that the " neuroses " from which we are all supposed to suffer are due to repression of the universal and perennial urge to sexual expression, he reaches the logical conclusion that all these troubles would cease if the repressions were abandoned and the impulse allowed to take unhindered effect.

This is, in short, the thesis of the book.